Evaluation of COVID-19 fear and nutrition habits in healthcare workers

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Abstract

Aim: This study aims to evaluate the COVID-19 fear level and nutrition habits of healthcare workers.

Material and Methods: This research was conducted with 208 healthcare workers in Konya City Hospital and Meram State Hospital. Participants filled out the sociodemographic information form, COVID-19 Phobia Scale and Three-Factor Eating Questionnaire. The SPSS 22,0 program was used for data analysis. Results: Among participants between the ages of 18-65 included in the study, 59.1% (n=123) were female and 40.9% (n=85) were male. The average age of participants was found to be 29.32 ±0.43 years. In the COVID-19 Phobia Scale, scores of women in psychological (p<0.001), somatic (p=0.001), social (p=0.001), economic (p=0.001) sub-dimensions and total score (p=0.026) were found to be higher than those of men. Fear levels of married participants were higher in somatic (p=0.018) and economic (p=0.044) sub-dimensions. Scores of obese and overweight participants' in psychological (p=0.002), somatic (p=0.017), social (p=0.028), economic (p=0.011) sub-dimensions and in total score (p=0.001) were found to be lower. The total score of the Three-Factor Nutrition Questionnaire (p=0.017) and emotional eating levels (p=0.006) of healthcare workers who had COVID-19 before were found to be higher. It was detected that there was a positive correlation between the degree of emotional eating and the social sub-dimension (p=0.048), and there was a negative relationship between the degree of consciously restricting eating and the psychological sub-dimension (p=0.009).

Discussion: Nutritional habits have changed due to isolation conditions, sedentary lifestyles and the need for supplemental food. The stressful and risky working environment of healthcare workers affected their fear levels. With the increase in the fear level, eating habits have also changed. As in all pandemics, policies should be followed to reduce the level of fear of healthcare workers, who are among risky groups, during the COVID-19 pandemic process. In this process, the importance of nutrition should be emphasized and negative habits should be avoided.

Keywords

COVID-19 Phobia, Three-Factor Eating Questionnaire, Healthcare Workers, Pandemic

Introduction

At the beginning of the century, the new type of coronavirus, which also caused the deadly Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), started to spread and was declared a COVID-19 pandemic by the World Health Organization on March 11, 2020 [1].

As in many other natural disasters, pandemics cause societies to show different reactions. The resulting environment of uncertainty and health anxiety can cause a social trauma in a short time [2].

In previous pandemics, it has been demonstrated that measures such as lockdowns, temporary closures, limited personnel employment in workplaces and travel bans, apart from medical practices, have prevented the spread of the disease [3]. It has been observed that these practices, which were implemented in the first coronavirus epidemic (SARS) in 2003, increased the level of anxiety of the public and health workers, leading to desperation and trauma [4]. In addition, it has been found that women and people with low education levels have higher anxiety levels [5]. In a study conducted during avian influenza, it was determined that individuals with high anxiety levels were more stressed and tended to lean more on avoidance behavior [6]. These examples show that the perception of illness in different segments of society is related to anxiety levels.

According to a study conducted during the SARS epidemic, it was revealed that healthcare workers experienced more stress than the normal population, and this stress persisted for a long time, causing depression, anxiety and post-traumatic stress disorder [7]. It has been stated that long-term support services should be provided against psychological distress and burnout syndrome among healthcare workers during the COVID-19 process [8].

In the pandemic process, isolation, stay-at-home warnings and decreasing social life have increased inactivity and reduced the need for energy. However, with the thought of leaving the house less, food was stocked and food consumption increased. Studies show that eating habits deteriorate, the need for eating increases, the feeling of self-restraint while eating decreases, and the number of meals increases [9]. With the prolongation of the process, living at home for a long time caused boredom and stress. In such cases, people have resorted to a diet based on carbohydrates, take-home foods and sugar in order to relax emotionally. Emotional eating habits cause excessive intake of food [10]. In this process, diseases such as diabetes and obesity have also increased [11, 12].

The importance of a healthy nutrition in increasing resistance to infections was recognized, and it was emphasized that malnutrition has caused an increase in mortality rates in previous epidemics [13]. It is recommended to consume foods rich in vitamins such as A, B6, B12, D, E, polyunsaturated fatty acids such as omega-3, zinc, iron and selenium in viral infections [14]. All these processes have increased the interest in nutrition in society. However, it is not clear whether this interest was in the direction of healthy nutrition.

In this study, it was aimed to determine the nutritional habits of healthcare professionals (consciously restricting eating, uncontrolled eating, emotional eating, sensitivity to hunger) and to evaluate its relationship with the COVID-19 fear level.

Material and Methods

Setting and population of the study

Healthcare workers between the ages of 18-65 who agreed to fill out the questionnaire at the Konya City Hospital and Meram State Hospital between November 2021 and December 2021 were included in this study. Pregnant and lactating women, those with endocrine disorders and those using drugs that affect appetite were not included in the study.

Approval for the study was obtained from the Selcuk University Faculty of Medicine Local Ethics Committee (2021/524). Participants were asked to fill in the sociodemographic features form. Questions like 'Was there COVID-19 patients nearby?', 'Has s/he contacted with COVID-19 patients?', 'Did s/he get tested due to COVID-19 suspicion?', were asked and if so, the results were recorded. The COVID-19 Phobia Scale (C19P-S) was used to measure the COVID-19 phobia of the volunteers and the Three Factor Eating Questionnaire (TFEQ) was conducted to determine the change in their eating habits.

COVID-19 Phobia Scale (C19P-S)

C19P-S was developed by Ibrahim Arpaci et al. in 2020. It was created to measure excessive and permanent fear of the new type of coronavirus disease. It is a 5-Likert-type self-assessment scale consisting of 20 items. This scale consists of 4 sub-dimensions: psychological, somatic, social and economic. High scores indicate high COVID-19 phobia [15].

Three Factor Eating Questionnaire (TFEQ)

TFEQ is a survey created to measure dietary habits. The 18-question format of the TFEQ was developed by Jan Karlsson et al. in 2000. It consists of 4 sub-dimensions that measure an individual's level of consciously restricting eating, eating uncontrollably, eating emotionally, and sensitivity to hunger. Turkish validity and reliability study was conducted by Deniz Kıraç et al. as the "Three-Factor Eating Questionnaire" [16].

Statistical analysis

Statistical analysis of the data obtained in the study was evaluated with Statistical Packet for the Social Science for Windows Version 22.0 (SPSS) at the $α=0.05$ significance level. Descriptive statistics in single groups and Kolmogorov-Smirnov and Shapiro-Wilk analyses, which are among the tests of compatibility to distribution in continuous data, were used. The Mann-Whitney U test was used for the analysis of non-normally distributed data. Spearman's correlation analyses were used in the measurement of relationship levels.

Power analysis for the study was obtained using the Epi Info 1.4.3 package program. In the power analysis, the sample number of 4015 health workers working in Konya City Hospital and Meram State Hospital was 158, with a 5% margin of error and 80% power. The study was completed with 208 people.

Results

The study was completed with a total of 622 people between the ages of 18-65. The average age of the participants was $29.32±0.43$ years, 59.1% (n=123) of the participants were women, 49.5% (n=103) were married, and 58.2% (n=121) had a high monthly income; 31.7% (n=66) of the participants were smokers. Of the participants, 60.6% (n=126) were of normal weight and 12% (n=25) were obese. There were 21 (10.1%) people with a chronic disease.

In the COVID-19 Phobia Scale, scores of women in psychological (p<0.001), somatic (p=0.001), social (p=0.001), economic (p=0.001) sub-dimensions and total score (p=0.026) were found to be higher than those of men. Married people had higher scores in the somatic and economic sub-dimension of C19P-S (p=0.018, p=0.044, respectively). Those with chronic disease had higher somatic sub-dimension scores in C19P-S (p=0.033). Total C19P-S and subgroup scores of the underweight and normal weight groups were higher than those of the overweight and obese (p=0.002, p=0.017, p=0.028, p=0.011, p=0.001, respectively). Those with a relative with COVID-19 had lower scores in the somatic sub-dimension of C19P-S (p=0.005) (Table 1).

Women's scores were found higher in the emotional eating sub-dimension of TFEQ (p=0.026). In the level of uncontrolled eating, the degree of emotional eating, the level of sensitivity

Table 1. Comparison of the COVID-19 Phobia Scale Factors by Sociodemographic Features and Risk Factors of Coronavirus 19 Disease

	Psychological sub-dimension	Somatic Sub-dimension	Social Sub-dimension	Economic sub-dimension	Total Score
	Median (min-max)	Median (min-max)	Median (min-max)	Median (min-max)	Median (min-max)
Gender					
Female (n=123)	17 (5-25)	9 (5-25)	12 (5-25)	8 (4-18)	47 (20-89)
Male (n=85)	14 (7-30)	7 (5-25)	10 (5-25)	9 (4-14)	40 (21-100)
p*	<0,001	0.001	0.001	0.001	0.026
Marital status					
Married (n=103)	16 (7-30)	9 (5-24)	11 (5-25)	8 (4-18)	43 (21-89)
Single (n=105)	17 (6-30)	8 (5-25)	12 (5-25)	8 (4-20)	46 (20-100)
p*	0.128	0.018	0.520	0.044	0.869
Chronic disease					
No (n=187)	16 (6-30)	8 (5-25)	12 (5-25)	8 (4-20)	45 (20-100)
Yes (n=21)	16 (11-30)	10 (5-24)	12 (5-25)	8 (4-18)	44 (27-89)
p*	0.983	0.033	0.931	0.330	0.608
BMI category					
Underweight and normal weight (n=131)	17 (7-30)	9 (5-25)	12 (5-25)	8 (4-18)	47 (21-89)
Overweight and obese (n=77)	14 (6-30)	7 (5-25)	11 (5-25)	7 (4-20)	41 (20-100)
p*	0.002	0.017	0.028	0.011	0.001
Presence of COVID-19 Patients Nearby					
No (n=181)	16 (6-30)	9 (5-25)	12 (5-25)	8 (4-20)	45 (20-100)
Yes (n=27)	19 (7-30)	6 (5-18)	12 (5-23)	6 (4-18)	43 (22-89)
p*	0.110	0.005	0.659	0.150	0.999
COVID-19 Test Result					
Negative (n=27)	17.62 (7-25)	8 (5-12)	11.62 (5-17)	8 (4-12)	47 (22-59)
Positive (n=7)	18.71 (8-30)	6 (5-24)	13.42 (8-25)	4 (4-10)	39 (29-89)
p*	0.078	0.186	0.115	0.361	0.831

(min-max): minimum-maximum value, BMI: Body mass index, *: Mann-Whitney U test, kg/m2: kilogram/square meter

Table 2. Comparison of Three Factor Eating Questionnaire Factors by Sociodemographic Features and Risk Factors of Coronavirus 19 Disease

Three Factor Eating Questionnaire	Sub-dimension 1 Median	Sub-dimension 2 Median	Sub-dimension 3 Median	Sub-dimension 4 Median	Total Score Median
	(min-max)	(min-max)	(min-max)	(min-max)	(min-max)
Gender					
Female (n=123)	11 (5-20)	7 (3-12)	14 (6-24)	8 (4-16)	42 (19-61)
Male (n=85)	11 (5-17)	6 (3-12)	15 (6-22)	9 (4-14)	41 (24-59)
p*	0.821	0.026	0.427	0.408	0.250
BMI category					
25 kg/m2 and below (n=131)	11 (5-19)	6 (3-12)	14 (6-24)	8 (4-16)	40 (19-60)
25 kg/m2 above (n=77)	12 (6-20)	8 (3-12)	15 (6-24)	10 (4-16)	44 (28-61)
p*	<0.001	0.014	0.598	<0.001	<0.001
COVID-19 Test Result					
Negative (n=27)	11 (5-19)	6 (3-11)	14 (7-24)	8 (4-14)	40 (23-51)
Positive (n=7)	12 (9-14)	10 (5-11)	15 (11-20)	10 (5-11)	47 (39-50)
p*	0.344	0.006	0.205	0.304	0.017

Sub-dimension-1: Uncontrolled eating, Sub-dimension-2: emotional eating, Sub-dimension-3: consciously restricting eating, Sub-dimension-4: sensitivity to hunger, (min-max): minimum-maximum value, BMI: Body mass index, *: Mann-Whitney U test, kg/m2: kilogram/square meter

Table 3. Correlation Analysis Between the COVID-19 Phobia Scale and the Three Factor Eating Questionnaire

		C19P-S-1	C19P-S-2	C19P-S-3	C19P-S-4	Total Score (C19P-S)
Total Score (TFEQ)	r	-0.065	0.103	0.047	0.078	0.025
	p	0.348	0.140	0.496	0.260	0.720
Uncontrolled eating	r	0.033	0.058	0.059	0.005	0.057
	p	0.639	0.404	0.397	0.944	0.416
Emotional eating	r	0.062	0.113	0.137	0.075	0.112
	p	0.373	0.105	0.048	0.281	0.107
Consciously restricting eating	r	-0.180	0.008	-0.102	0.051	-0.114
	p	0.009	0.909	0.142	0.468	0.101
Level of Sensitivity to Hunger	r	-0.132	0.124	0.021	0.015	-0.023
	p	0.058	0.074	0.760	0.828	0.744

C19P-S: COVID-19 Phobia Scale, C19P-S-1: Psychological Sub-Dimension, C19P-S-2: Somatic Sub-Dimension, C19P-S-3: Social Sub-Dimension, C19P-S-4: Economic Sub-Dimension, TFEQ: Three Factor Eating Questionnaire, p-value to Spearman's correlation analysis found accordingly.

to hunger, and the total score of TFEQ, the scores of the obese and overweight were higher than those of underweight and normal weight (p<0.001, p=0.014, p<0.001, p<0.001, respectively). Emotional eating degree and total score of TFEQ were found to be higher in those with positive COVID-19 test (p=0.006, p=0.017, respectively) (Table 2).

A positive correlation was found between the degree of emotional eating and the social sub-dimension of C19P-S (p=0.048). A negative correlation was found between the degree of consciously restricting eating and the psychological sub-dimension of C19P-S (p=0.009) (Table 3).

Discussion

In this study, the fear of COVID-19 and the nutritional habits of healthcare workers were evaluated. Research findings show that COVID-19 fear levels were high in women, married people, normal-weight and underweight people. In addition, it has been observed that the eating habits of overweight and obese people change.

It has been revealed that women are more affected by the process during the COVID-19 period [17, 18]. In our study, fear levels were found to be higher in the female gender. In a study measuring eating behavior during the COVID-19 period, it was revealed that women change the number of meals more than men [11]. In this study, it was found that emotional eating levels of female health workers were higher than that of males. We think that women are affected more emotionally by this process and this also affects their eating habits.

In a study conducted in China among the normal population, it was observed that mental status was not different between married and single people during the COVID-19 period [19]. In this study, it was found that married health workers developed more fear than singles. The reason for the high level of fear among married health workers may be due to the fact that, unlike other occupational groups, health workers are in constant contact with COVID-19 patients at work and the possibility of transmitting the disease to their spouse and children is high.

As in other infections, the risk of contracting COVID-19 is higher in those with chronic diseases and it has a more fatal course [20, 21]. In our study, it was found that healthcare workers with chronic diseases had a higher fear of COVID-19. This result was expected.

Obesity is one of the important risk factors for COVID-19. It is known that obese individuals have a lower immune response to infections, reduce respiratory capacity and pose a risk for COVID-19 infection [22]. In this study, it was found that overweight and obese individuals have a lower incidence of COVID-19 phobia. This may be due to the low health perception of overweight and obese individuals.

With the increase in the time spent at home and online shopping, unbalanced eating habits have begun to be observed. With the decrease in physical activity, the susceptibility to obesity has increased. In this process, an increase in unbalanced eating behaviors was observed in overweight and obese individuals with impaired nutritional habits [23]. In this study, it was determined that overweight and obese healthcare workers have high levels of uncontrolled eating, emotional eating and sensitivity to hunger.

Many studies mention that health workers develop more stress, fear, mental problems and depression due to their higher risk in the COVID-19 pandemic [24]. It has been revealed that nurses and doctors, who are in direct contact with the patients, experience these problems more than the administrative staff [25]. However, in this study, it was revealed that the level of fear in healthcare workers whose relatives were infected with COVID-19 was lower. The reason for this can be explained by the high level of knowledge about COVID-19 of healthcare professionals, while other professions learn about the disease when their relatives have had COVID-19.

Vitamins A, B, C, D, omega-3, selenium, and zinc supplements are generally recommended during COVID-19 disease [11]. It has been recommended that nutritional supplements and healthy nutrition programs be continued during hospitalizations and after discharge [25]. These recommendations have been applied more carefully by healthcare professionals who have had COVID-19. This may be the reason for the high level of emotional eating in healthcare workers in our study. It has been revealed that as the level of fear of COVID-19 increases in healthcare workers, the level of emotional eating increases, and the level of consciously restricting eating decreases.

Conclusion

Considering the social effects of the COVID-19 Pandemic, healthcare workers are among the risky groups. Healthcare workers were affected by the uncertainty, risky and intense

working environment, and increased fear, stress and mental problems.

Nutritional habits have changed due to isolation conditions, sedentary life and the need for supplemental food. The stressful and risky working environment of healthcare workers affected their fear levels. The increase in the level of fear has also changed eating habits.

References
1. Tarık A. Management of the fight against the Covid-19 epidemic in terms of internal security. International Journal of Social Sciences Education Research. 2020;6(2):269-81.
2. Tutku E, Iliman E, Dönmez E. Comparison of Individuals' Health Anxiety Levels and Covid-19 Outbreak Control Perception. International Journal of Health Management and Strategies Research. 2020;6(1):139-54.
3. Eastwood K, Durrheim D, Francis JL, d'Espaignet ET, Duncan S, Islam F, et al. Knowledge about pandemic influenza and compliance with containment measures among Australians. Bull World Health Organ. 2009;87(8):588-94.
4. Lau JT, Yang X, Pang E, Tsui H, Wong E, Wing YK. SARS-related perceptions in Hong Kong. Emerg Infect Dis. 2005;11(3):417.
5. Leung GM, Ho LM, Chan SK, Ho SY, Bacon-Shone J, Choy RY, et al. Longitudinal assessment of community psychobehavioral responses during and after the 2003 outbreak of severe acute respiratory syndrome in Hong Kong. Clin Infect Dis. 2005;40(12):1713-20.
6. Lau JT, Kim JH, Tsui H, Griffiths S. Perceptions related to human avian influenza and their associations with anticipated psychological and behavioral responses at the onset of the outbreak in the Hong Kong Chinese general population. Am J Infect Control. 2007;35(1):38-49.
7. Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. Can J Psychiatry. 2009;54(5):302-11.
8. Yılmaz BKY, Güler ME, Dalkilic OS. Evaluation of Health Professionals' Perspectives and Attitudes to the Covid-19 Global Outbreak. Yaşar University E-Journal.16(62):960-81.
9. Di Renzo L, Gualtieri P, Pivari F, Soldati L, Attinà A, Cinelli G, et al. Eating habits and lifestyle changes during COVID-19 lockdown: an Italian survey. J Eransl Med. 2020;18(1):1-15.
10. Muscogiuri G, Barrea L, Savastano S, Colao A. Nutritional recommendations for CoVID-19 quarantine. Journal of Clinical Nutrition. 2020;74(6):850-1.
11. Kutlu N, Ekin MM, Aslıhan A, Ceylan Z, Meral R. A Study on the Determination of Changes in Nutritional Habits of Individuals During the Covid-19 Pandemic Process. International Journal of Social, Political Economic Research. 2021;8(1):173-87.
12. Dilber A, Dilber F. The Coronavirus (COVID-19) Pandemic on Individuals' Nutritional Habits. Journal of Tourism Gastronomy Studies. 2020;8(3):2144-62.
13. Reyes L, Arvelo W, Estevez A, Gray J, Moir JC, Gordillo B, et al. Population‐based surveillance for 2009 pandemic influenza A (H1N1) virus in Guatemala, 2009. Influenza Other Respir Viruses. 2010;4(3):129-40.
14. Zhang L, Liu Y. Potential interventions for novel coronavirus in China: A systematic review. J Med Virol. 2020;92(5):479-90.
15. Arpaci I, Karataş K, Baloğlu M. The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). Personality Individual Differences. 2020;164:110108.
16. Kıraç D, Kaspar EC, Avcılar T, Çakır ÖK, Ulucan K, Kurtel H, et al. A new method in the investigation of obesity-related eating habits, "Three Factor Eating Questionnaire". Clinical And Experimental Health Sciences 2015;5(3):162-9.
17. Bakioğlu F, Korkmaz O, Ercan H. Fear of COVID-19 and positivity: the mediating role of intolerance of uncertainty, depression, anxiety, and stress. Int J Ment Health Addict. 2021;19(6): 2369-82.
18. Demirbas N, Kutlu R. Effects of COVID-19 Fear on Society's Quality of Life. Int J Ment Health Addict. 2021; 11-10.
19. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health. 2020;17(5):1729.
20. Altın Z. The elderly in the COVID-19 pandemic. Journal of Tepecik Training and Research Hospital. 2020;30:49-57.
21. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. The Lancet. 2020;395(10223):507-13.
22. Çulfa S, Yildirim E, Bayram B. The relationship between changing eating habits and obesity in humans during the COVID-19 pandemic. Online Turkish Journal of Health Sciences. 2021; 6(1):135-42.
23. Baki S, Piyal B. Work-family conflict in terms of healthcare workers in COVID-19 pandemic and similar extraordinary situations. Health and Society. 2020;119-23.
24. García-Reyna B, Castillo-García GD, Barbosa-Camacho FJ, Cervantes-Cardona GA, Cervantes-Pérez E, Torres-Mendoza BM, et al. Fear of COVID-19 scale for hospital staff in regional hospitals in Mexico: A brief report. Int J Ment Health Addict. 2020;1-12.
25. Barazzoni R, Bischoff SC, Breda J, Wickramasinghe K, Krznarić Ž, Nitzan D, et al. ESPEN expert statements and practical guidance for nutritional management of individuals with SARS-CoV-2 infection. Liječnički Vjesnik. 2020;142(3-4):75-84.